CALS TEST NETWORK

AFCTN Test Report 93-043

AFCTB-ID 93-051

Technical Publication Transfer

Using:

Rockwell International's Data

MIL-R-28002A (Raster)

Quick Short Test Report

21 May 1993

Prepared for

Electronic Systems Center

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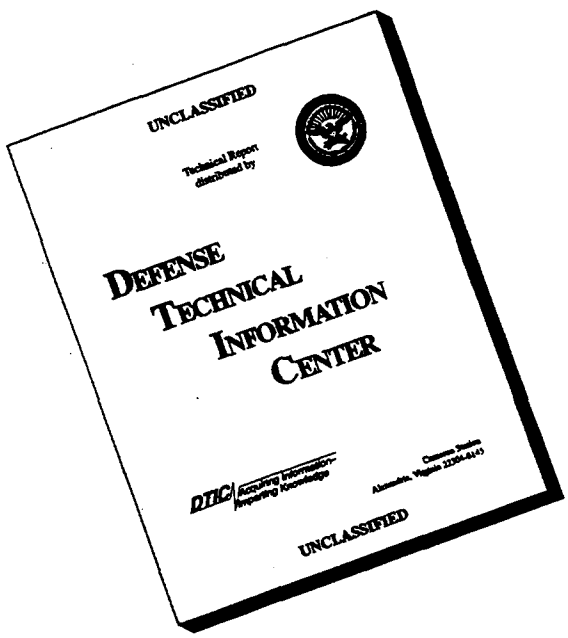

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Technical Raster Transfer
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Quick Short Test Report

21 May 1993

Prepared By
Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

AFCTB Contact
Gary Lammers
(513) 427-2295

AFCTN Contact
Mel Lammers
(513) 427-2295

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Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Rockwell International's interpretation and use of the CALS standards, in transferring technical publications data. Rockwell used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 93-051

Date of Evaluation: 21 May 1993

Evaluator:
George Elwood
Air Force CALS Test Bed
Det 2 HQ ESC/ENCP
4027 Colonel Glenn Hwy
Suite 200
Dayton OH 45431-1672

Data Originator:
John Armsby
Rockwell International
Missile Systems Division
Defense Electronic Operation
1800 Satellite Blvd
Duluth GA 30136

Data Description: Technical Raster Test
1 Document Declaration file
1 Raster file

Data Source System:

1840

HARDWARE

Unknown

SOFTWARE

AFCTN *Tapetool*

Raster

HARDWARE

Unknown

SOFTWARE

Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.8 UNIX*
AGFA Compugraphics *CAPS/CALS v40.4*
Texas Instruments (TI) *Tapetool v1.0.1*

PC 486/50

AFCTN *Tapetool v1.2.9 DOS*

MIL-R-28002 (Raster)

SUN SparcStation 2

ArborText *g42tiff*
Carberry *CADLeaf Plus v3.1*
AFCTN *validg4*
AFCTN *calstb.475*
IGES Data Analylis (IDA) *IGESView v3.0*
Island Graphics *IslandPaint v3.0*

PC 486/50

AFCTN *validg4*
IDA *IGESView Windows*
Inset Systems *HiJaak v2.1*
Inset Systems *HiJaak Window Pro v2.0*
Corel *Ventura Publisher*

Standards Tested:

MIL-STD-1840A
MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a commercial mailing bag. The exterior of the bag was not marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was not enclosed in a barrier bag or barrier sheet material, as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the bag was a packing list showing all files recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.9* utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using the AGFA *CAPS read1840A* utility without any reported errors.

The tape was read using TI's *Tapetool v1.0.1* with no reported errors.

The physical tape structure meets the CALS MIL-STD-1840A requirements.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file and data file header. The tape meets the CALS MIL-STD-1840A requirements.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included on this tape.

6. Raster Analysis

The tape contained one (1) Raster file. This file was evaluated using the AFCTN *validg4* utility. This program reported that the file had an error. When the file was checked, it was noted that two CALS headers were inserted. Using the stripped header version of the file from *Tapetool* (only one header remained) the file was reported as meeting the specification.

The corrected file was read into the AFCTN *calstb.475* viewing utility. No problems were noted.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

An attempt to convert the file using Arbortext's *g42tiff* utility resulted in an error being generated. The reported error was "Fax3Dcode2D: Bad 2D code word at scanline 2404."

The Raster file was read into Carberry's *CADLeaf* software without a reported error. The images were displayed. As a further test of the Carberry software, it was converted to an IGES file which was then read into several programs without any problems.

The file was read into IDA's *IGESView* and *IGESView for Windows* without a reported error.

The file was read into Inset Systems' *HiJaak for Windows* without a reported error.

The file was converted using Inset Systems' *HiJaak for DOS* into an IMG format without a reported error. The resulting files were read into Corel's *Ventura Publisher*, displayed and printed.

The Raster file was converted using Rosetta Technologies' *Prepare* without a reported error. The resulting file was read into *Preview*, displayed and printed.

The Raster file, as it came off the tape, does not meet the CALS MIL-R-28002A specification, because of the double header. However, the file with the extra header removed meets the CALS MIL-R-28002A specification.

7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included on this tape.

8. Conclusions and Recommendations

The tape from Rockwell International was basically correct. The tape could be read properly using the AFCTN *Tapetool* software and other tape reading utilities without any reported errors.

The errors with the Raster image were serious. The file as it came off the tape had double header records. When one of these records were removed, the file met the specification.

The tape does not meet the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

```
Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release 9 (0)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri May 21 07:16:48 1993

MIL-STD-1840A File Catalog

File Set Directory: C:\CTN129\OVERLAND\SET010

                                                                    Page: 1

                                                Record
                                                Format/     Block      Selected/
File Name                File Type              Length  Length/Total  Extracted
-------------------------------------------------------------------------------
D001                     Document Declaration   D/00260 02048/000001  Extracted
D001R001                 Raster                 F/00128 02048/000042  Extracted

Catalog Process terminated normally.
```

9.2 Tape Evaluation Log

```
Air Force CALS Test Network Tape Evaluation - Version 1.2; Release 9 (O)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri May 21 07:16:44 1993

ANSI Tape Import Log

Rewinding tape to load point...

VOL1CALS01                                                              4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001             CALS0100010001000000 93133 00000 000000

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93133
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2D0204800260                                  00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

********** Tape Mark **********
```

```
  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D001            CALS0100010001000000 93133 00000 000001

  Label Identifier: EOF1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93133
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2D0204800260                                    00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

HDR1D001R001        CALS0100010002000000 93133 00000 000000

  Label Identifier: HDR1
  File Identifier: D001R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93133
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:
```

```
HDR2F0204800128                                    00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 42.

************ Tape Mark ***************

EOF1D001R001         CALS0100010002000000 93133 00000 000042

  Label Identifier: EOF1
  File Identifier: D001R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  93133
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000042
  Implementation Identifier:

EOF2F0204800128                                    00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************

############ End of Volume CALS01 ###############

############ End Of Tape File Set ###############

Rewinding tape to load point...
Tape Import Process terminated normally.
```

9.3 Tape File Set Validation Log

```
Air Force CALS Test Network File Set Evaluation - Version 1.2; Release 9 (O)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

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MIL-STD-1840A File Set Evaluation Log

File Set: SET010

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: ROCKWELL INTERNATIONAL TACTICAL SYSTEMS DIVISION, DULUTH GA.  30136
srcdocid: BENCHMARK #1
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19930511
dstsys: ATOS SYSTEM, HILL AIR FORCE BASE, UT 84056
dstdocid: BENCHMARK #1
dstrelid: NONE
dtetrn: 19930513
dlvacc: NONE
filcnt: R1
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Product Data
docttl: PRINTED WIRING BOARD-BOGUS TITLE


Found file: D001R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: WB13009745      51215 A            001007UMGEN8                    001
dstdocid: BENCHMARK #1
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 090,270
```

```
rpelcnt: 009248,007200
rdensty: 0200
notes: TEST DATA ONLY SRCDOCID IS A SWAG...

Saving Raster Header File: D001R001.HDR
Saving Raster Data File: D001R001.GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.
```

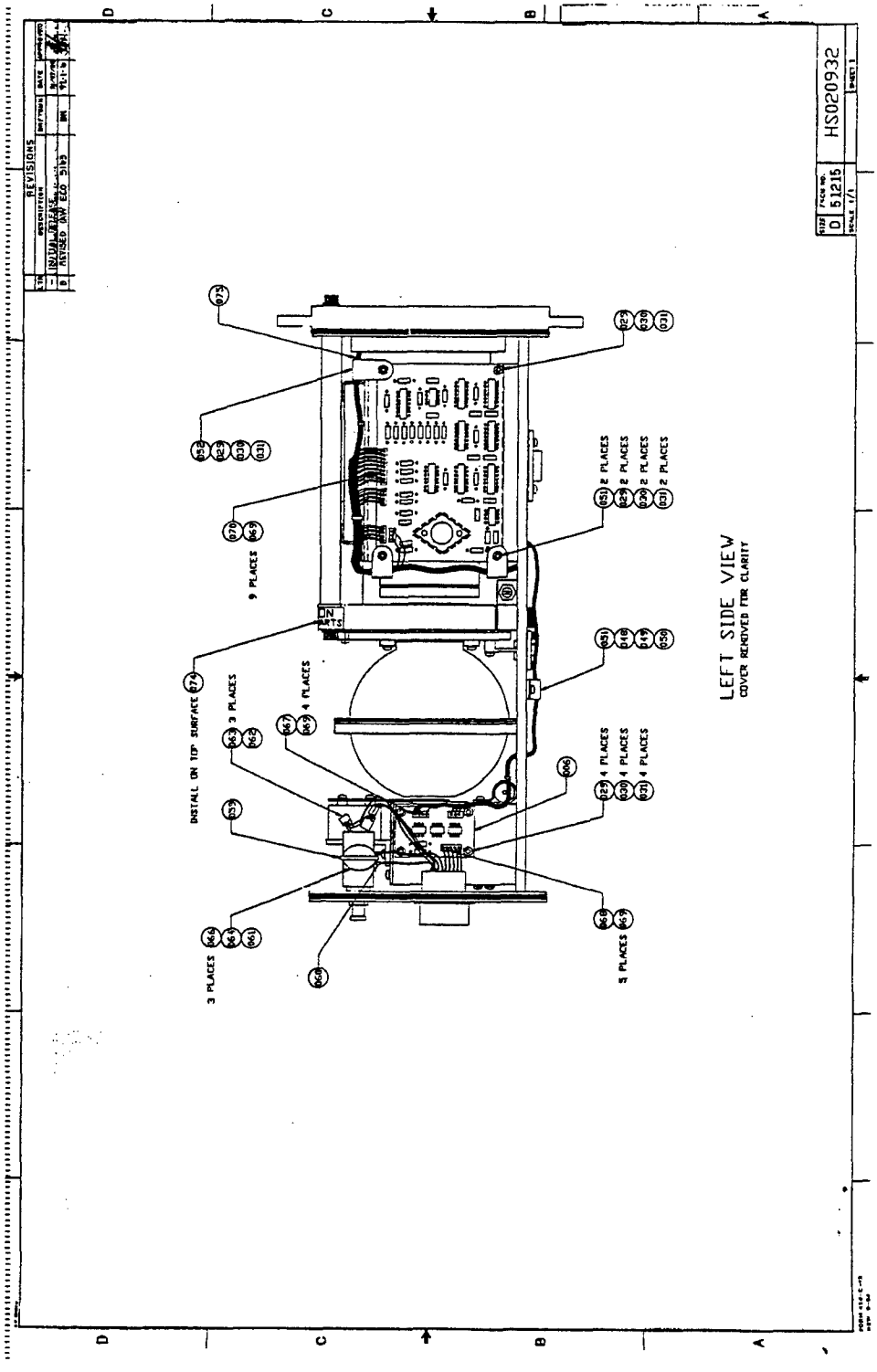
10. Appendix B - Detailed Raster Analysis

10.1 File D001R001

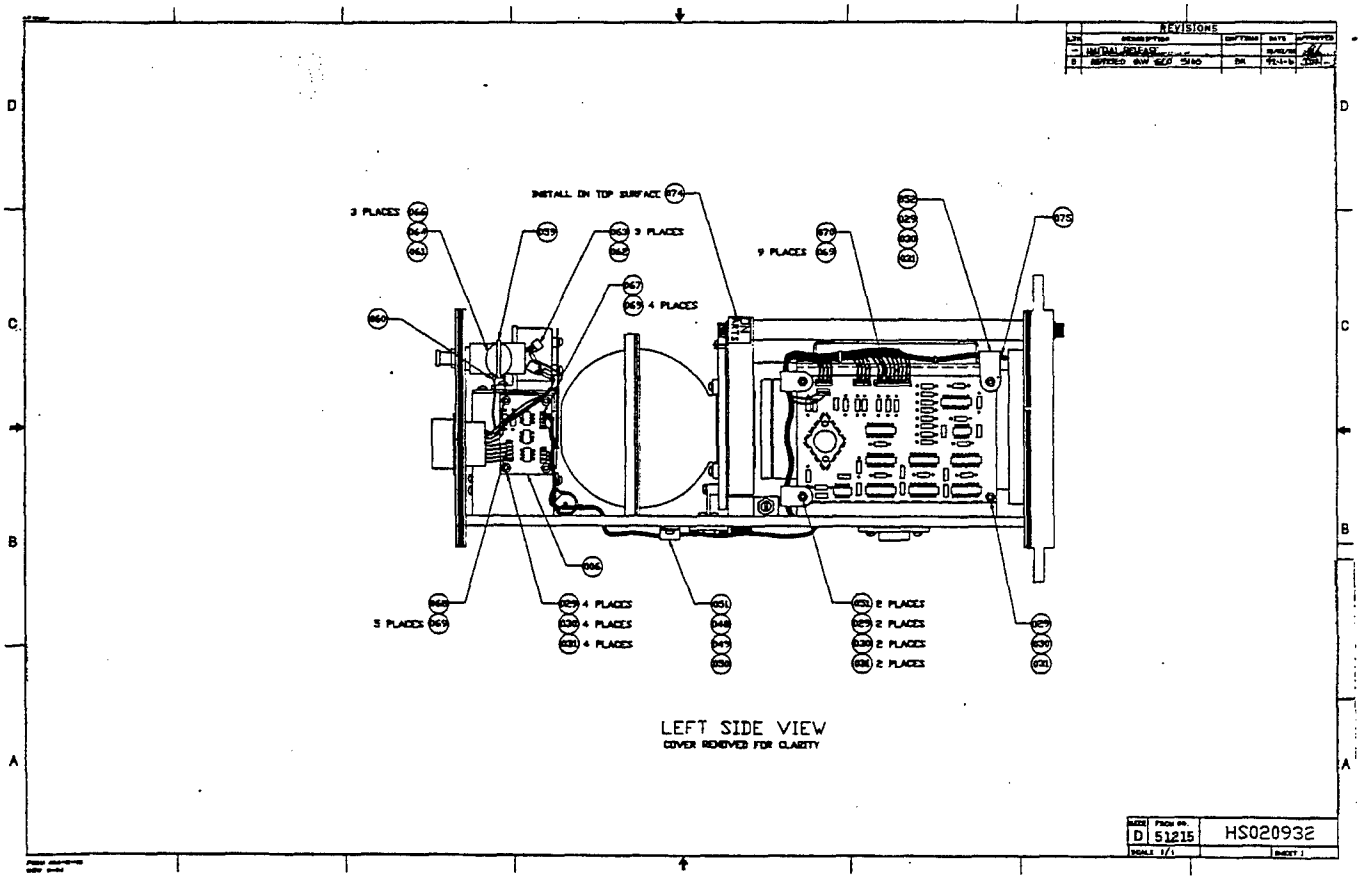
10.1.1 Error Log validg4

```
 density      = 200
 path length  = 9248
 scan lines   = 7200
 bit format   = MSB

error, scan length exceeds pel count
s=1 a0=0 bstop=9249 pos=0

file = i:\9351\r001.cal
```

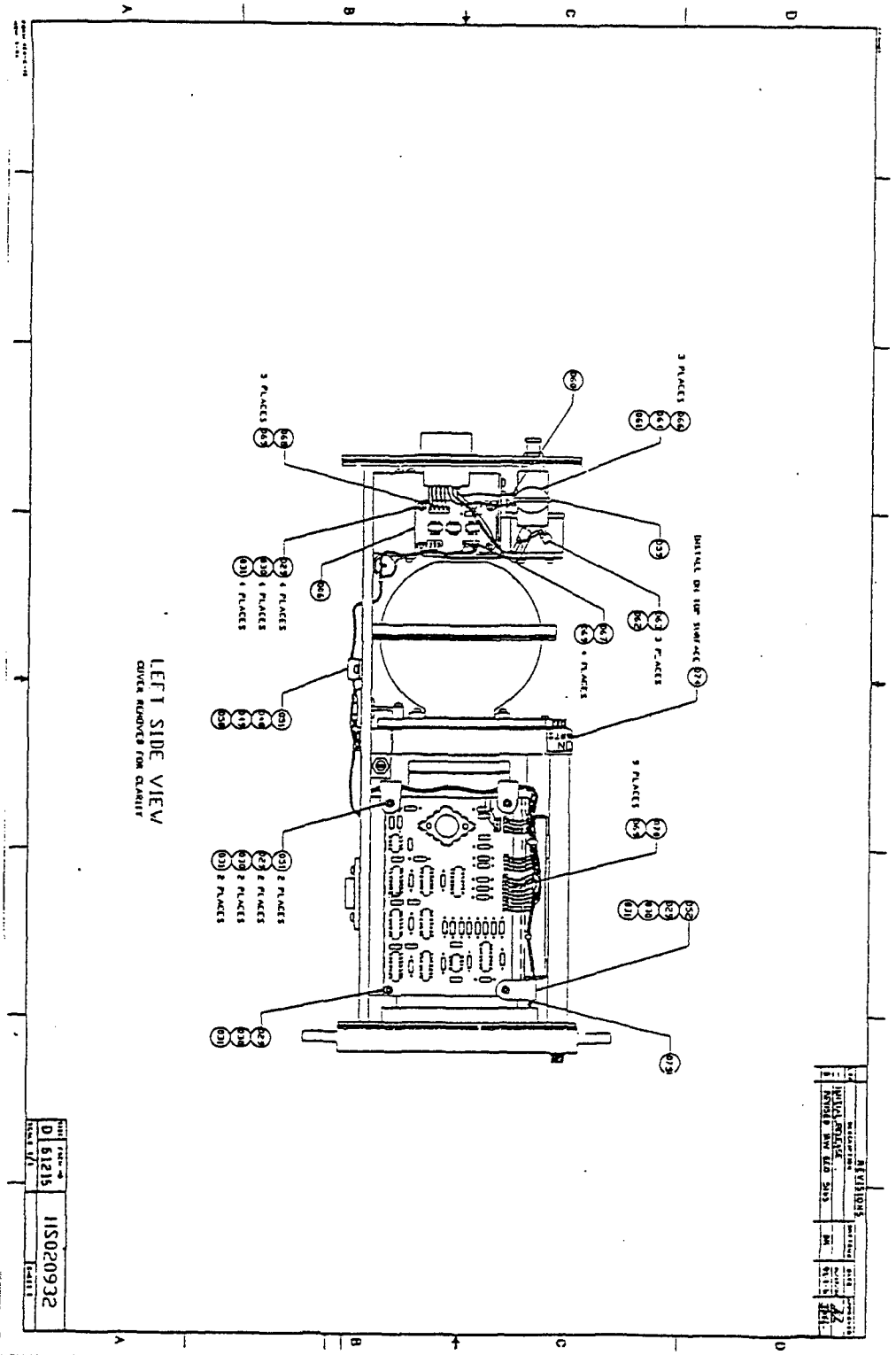
10.1.2 Output HiJaak for Windows



10.1.3 Output IGESView



10.1.4 Output Preview



10.1.5 Output HiJaak/Ventura Publisher